Data for Decision Making

Geological Survey Branch

1994/95 - 1995/96 Business Plan

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources
Mineral Resources Division
May 1994

Information Circular 1994-16

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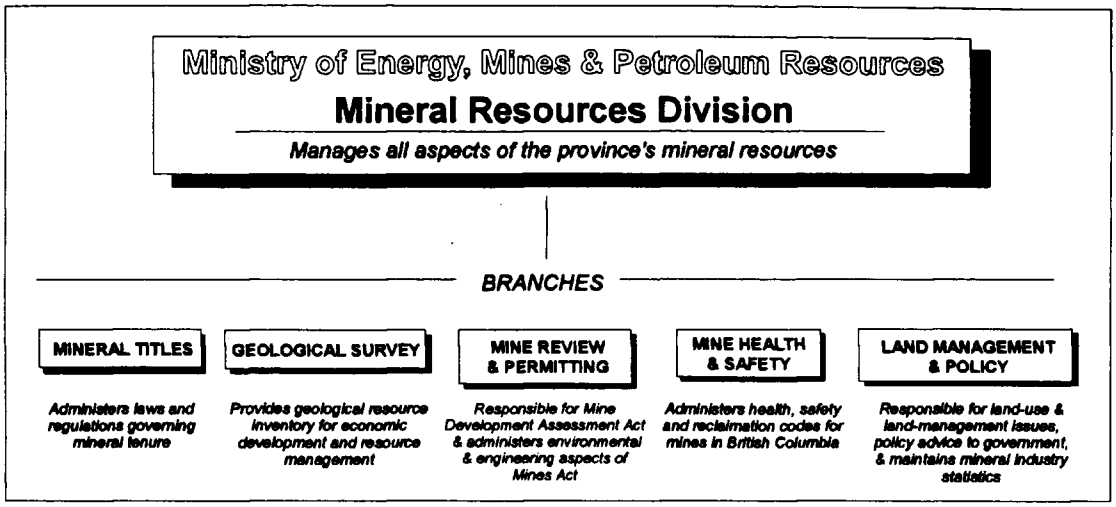
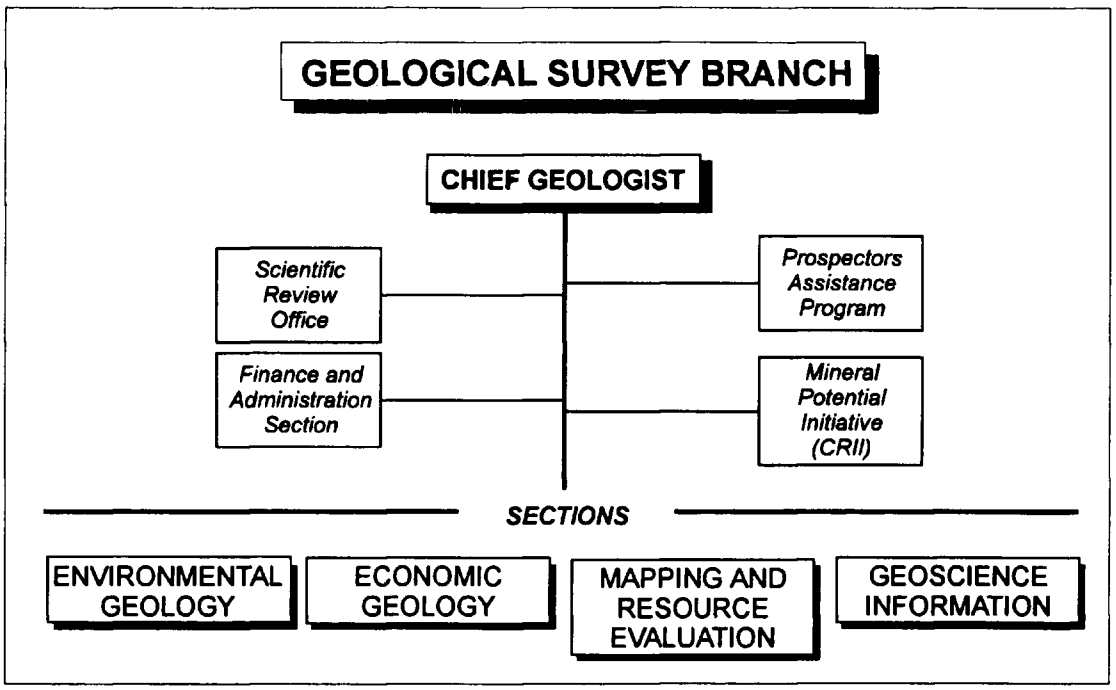
ORGANIZATIONAL STRUCTURE





INTRODUCTION

The Geological Survey Branch (GSB) of the Ministry of Energy, Mines and Petroleum Resources (the "Ministry") is charged with providing the geological inventory required to develop British Columbia's mineral resources, to improve government's stewardship of our mineral endowment, and to help manage and protect Crown lands. This Business Plan outlines the mandate and strategic priorities of the Geological Survey; it details the Geological Survey's responses to new government and Ministry priorities; and presents detailed plans and budgets of the '94/95 and '95/96 work program.

THE B.C. MINERAL SECTOR: ISSUES AND GOVERNMENT PRIORITIES

British Columbia is blessed with valuable geology, providing economic opportunities for all of its regions. The province is particularly well-endowed in base metals (copper, lead, zinc & molybdenum), precious metals (gold & silver), coal, and a number of key industrial minerals (*e.g.*, magnesite, limestone, barite and gypsum). Mining has been central to the provincial economy for over 100 years, as an important source of jobs, government revenues, and regional development. Recently, the B.C. mineral sector has faced some tough challenges in the form of lower metal prices and earnings, increased global competition, and changing public values and policy here at home.

These challenges were clearly documented in the government Discussion Paper, *"A Mineral Strategy for British Columbia"* released in March 1993.

The 1993/94 GSB Business Plan detailed a number of geoscience programs to address Strategic Priority I of the Mineral Strategy; to revitalize the exploration sector. A brief assessment of these programs is contained in the section *Program Accomplishments 1993/94.*

In 1994 the government has increased its efforts to help industry address the challenges facing the mineral sector. The 1994/95 budget announced a $100 million, 5-year program to revitalize exploration, maintain international competitiveness and create new, value added opportunities.

The Program includes three elements that will be delivered by the Geological Survey Branch:

- **Expanded geoscience field program** - an accelerated program to collect and release geoscience data that will identify promising new regions for ore bodies and attract exploration activity.

  New funding from the joint federal-provincial Mineral Development Agreement (MDA) will be focused on surveying activities in frontier areas of the province in '94/95 and '95/96 with perceived high mineral potential.

- **Explore B.C.** - a three-year incentive program for exploration and mining companies providing grants of up to one-third of exploration costs to a maximum of $150 000 per property.

- **Prospectors Assistance** - a program to promote grassroots exploration for new mineral deposits in B.C. Grants range up to $10 000 for qualified prospectors.

The government is also encouraging diversification of the mining industry. Urbanization of the province and a developing industrial sector are opening up new opportunities for industrial minerals and construction materials.

- **Industrial Mineral Program** - this joint venture between the Ministry and B.C. Trade has 3 goals:
  - Identify export opportunities and market B.C. products.
  - Replace imports with B.C. raw materials and products.
  - Promote new value-added uses and applications.
- **Integrated Land Use Allocation and Resource Management**

  Land use in British Columbia in the 1990s demands that all resource and ecological values are recognized and considered. The government's Corporate Resources Inventory Initiative (CRII) is a program to collect and integrate resource inventories in support of this goal.

  Under this initiative begun in 1992, the GSB is preparing state of the art, 1:250 000-scale mineral potential maps, which show the mineral inventory and estimates of the undiscovered mineral potential. Major clients are the Commission on Resources and Environment (CORE), Ministry of Aboriginal Affairs and the other resource ministries.

MANDATE & STRATEGIC PRIORITIES

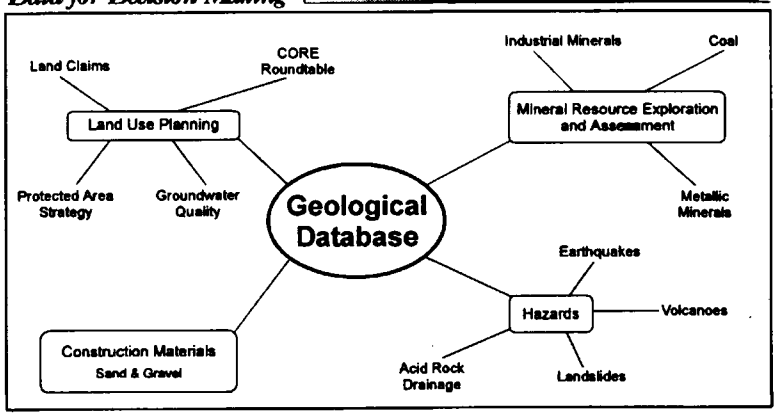
British Columbia's mineral resources are owned by the province. The Ministry of Energy, Mines and Petroleum Resources is responsible for the stewardship of those resources to meet the government's sustainable development goals, including economic development, protection of the environment, and the generation of wealth for British Columbians. The Geological Survey Branch contributes to provincial goals by maintaining the inventory of the province's geology and the mineral resources contained therein. The vitality of this inventory is a direct result of sustained, long term investment by the province over the last ninety-nine years.

The Geological Survey Branch, in partnership with the federal Geological Survey of Canada (GSC) works to maintain and expand British Columbia's geoscience database. We conduct geological surveys and applied research to attract and guide private sector exploration investment. A centrally-funded geological survey ensures that geological data are of high-quality and easily accessible. It also ensures that government receives the expert, objective advice needed to manage Crown lands, its mineral resources base, and to develop sound policy.

In return for its investment in geoscience surveying, the province benefits from private sector exploration spending, mine discoveries and developments, and the associated tax revenues from these activities. In 1992 mining companies in British Columbia and their employees paid over $412 million to all governments. Gross mining revenue currently approaches $3 billion per year, making B.C. the third largest mining province in Canada. B.C.'s mining industry directly provides approximately 14 300 jobs, while an additional 25 000 jobs are linked indirectly in the service sector industries such as transportation, communications, commercial business and trade, and financial services. The mining industry spends approximately $3 billion annually, 58% of which goes directly to British Columbia suppliers.

MANDATE

Data for Decision Making



The Branch's mandate is to:

Assemble, maintain, and market a comprehensive geoscience database for B.C. to provide a sound base for (1) exploration & development of the province's mineral resources; (2) planning & resource management decisions by governments; and, (3) public information on geological resources and hazards.

STRATEGIC PRIORITIES

The following are the main priorities, and related goals, that must be accomplished to meet the Branch mandate.

STRATEGIC PRIORITY	*STRATEGIC GOALS*
Industry Revitalization	Identify promising new regions for ore bodies through targeted geological surveys in order to attract new industry investment.
	Encourage exploration investment in British Columbia by providing part of the risk capital for prospectors and mining companies.
Data For Decision Making	Provide timely and reliable data on British Columbia's mineral resources, mineral potential and industry trends to government's land planning initiatives (CORE, PAS, LRMP), industry and First Nations.
Industry Diversification	Identify export opportunities and new markets for British Columbia's expanding industrial minerals sector.
Geological Hazards - Identification & Mitigation	As the principal advisor to the British Columbia government on geological matters, monitor research undertaken by the federal survey on earthquakes in B.C. and provide information and advice to all governments on measures to mitigate or avoid geological hazards.
Market Opportunities	Optimize market opportunities for British Columbia's minerals industry and the Geological Survey Branch products.
Avoid Duplication & Overlap in Federal & Provincial Geological Survey Activities	Mutually agree with the Geological Survey of Canada on priorities for their geoscience work in the province.

SUPPORT PRIORITIES

Support priorities are tools, programs and services essential to meet strategic priorities.

SUPPORT PRIORITY	*SUPPORT GOAL*
Information & Publications Services	Produce timely, reliable maps and reports in support of the GSB mission.
Community Relations & Communications	Improve communication with communities regarding GSB field programs targetted at industry revitalization and diversification within their areas.
Program Support & Administration	Financial, personnel and administrative support services that enable the Branch to achieve its mission.

VISION, VALUES & RELATIONSHIPS

THE BRANCH'S VISION IS:

To provide the geoscience data and expertise required to maximize the province's economic growth and environmental sustainability. We will be a full player in the process of government so that mineral values and natural geological hazards are considered in decision making. We will expand our role in communicating geoscience issues that affect the everyday lives of British Columbians.

Our vision of an expanded use of geoscience data requires that the Branch:

- Continues to ensure the B.C. geological database is high-quality, accessible and understandable, employing state-of-the-art data collection and management methods;
- Undertakes strategic marketing of our database to the mineral sector, government planners and the public; and,
- Increase our work with municipal planners and Provincial Emergency Program (PEP) and the public, to improve awareness and understanding of the geological risks that constantly threaten British Columbia's communities.

CORPORATE VALUES

As part of the Ministry's Mineral Resources Division, the Geological Survey Branch is part of a team charged with the stewardship and management of British Columbia's minerals. The Branch is committed to providing data and services in support of division, ministry, and government objectives. At the same time, we strive to create a rewarding work environment for staff in the scientific fields of geological surveying, related applied research, and for the Branch's support-services staff.

THE BRANCH'S VALUES ARE:

INTEGRITY

- GSB Staff are dedicated to supplying reliable geological data in a cost-effective and timely manner, and to providing professional, objective advice on mineral matters to industry, government and other clients.

TEAMWORK

- Strong teamwork within the Branch, with other Divisional staff at head office and in the regions, as well as with other government bodies, is crucial to realizing our mandate and vision.

LEADERSHIP

- Staff are encouraged to show leadership in carrying out their survey activities, pursuing joint initiatives with other ministries and agencies, and in representing the Division's mineral interests in government planning and policy making.

INNOVATION

- Innovation is integral to our surveying activities. All effort is made to employ the most modern techniques for gathering, integrating and interpreting geological information, and to keep abreast of the latest developments in geoscientific fields.

OPEN COMMUNICATION

- Dissemination of geoscience data and exploration ideas to the exploration industry through reports, meetings and field trips is a vital component of government's partnership program to promote B.C. mining.

RELATIONSHIPS

Industry

As a government funded organization the Branch is a visible commitment by government to help reduce exploration risk in B.C. and assist industry find the new mines of tomorrow.

The Branch's data, products and services encourage, promote, and assist the province's mineral, coal and industrial mineral sectors.

The Branch's annual work plan is critically reviewed by an industry advisory committee (Minister's Technical Liaison Committee; *see* External Advice). The Committee also evaluates scientific progress of approved projects and reports twice a year to the Minister of Energy, Mines and Petroleum Resources.

Government

Integrated resource management demands that subsurface resources and natural geological hazards are fully considered in managing Crown Lands. The Branch is a lead player in the government's inter-ministry *Corporate Resource Inventory Initiative* (CRII) and is the Ministry's representative on the inter-ministry *Land Information Steering Committee* (LISC) and the newly formed *Common Land Information Base Committee* (CLIBC) created to provide land use inputs to aboriginal issues.

The Branch will continue to maintain a close working relationship with Regional Geologists of the Land Management & Policy Branch to ensure effective support for provincial and regional economic development, and for responsive communication regarding mineral resources issues.

Geological Survey of Canada (GSC)

The GSC is the national organization charged with providing a comprehensive geoscience knowledge base on Canada's landmass, including the offshore.

It maintains two offices in British Columbia; one at Sidney focused on the offshore and on seismic monitoring, and one in Vancouver focused on regional tectonics, with emerging programs in groundwater research.

The GSC mandate and programs are broader in scope than the GSB's. Under a Memorandum of Understanding signed in 1991, a joint cooperation committee was formed to oversee the development of joint annual and long term plans for geoscience surveying in B.C. Substantial progress has been made since 1991 in ensuring GSC and GSB projects are more co-ordinated, mutually reinforcing, and meet the province's priorities.

Universities

Substantial collaboration exists between the Branch and universities, especially The University of British Columbia and its Mineral Deposit Research Unit.

Universities maintain sophisticated analytical laboratories. Their research programs and facilities enhance and complement the work of the Branch.

In return the Branch employs graduate and undergraduate students during the summer program and provides valuable field mapping training. The Branch also provides a venue for joint publication of research deemed valuable to the British Columbia geoscience database.

Public

British Columbian's are becoming increasingly aware of our dependence on finite natural resources for our economic well being, and our vulnerability, living in a mountainous province, to geological hazards such as earthquakes and landslides. Branch scientists are active in the government's *"Scientist in the Schools Program"*, and provide a number of products to the public such as geological maps, park geology guides, and other brochures on geoscience topics of interest to the public.

Upon request the GSB has provided geoscience and mineral inventory database information to First Nations. This has been followed up with special training in the application of these databases. Discussions are ongoing on further training opportunities.

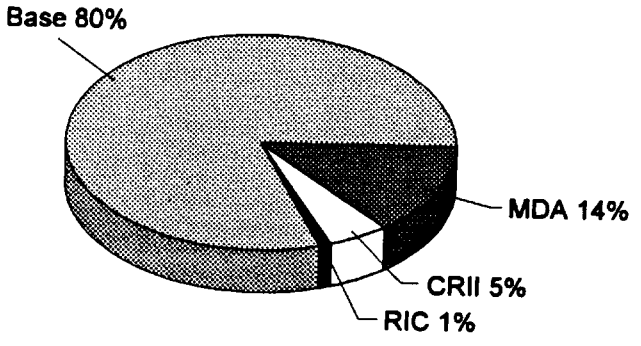
BRANCH RESOURCES

The Geological Survey Branch is organized into five sections, four technical and one administrative. The GSB has 70 regular staff members including two staff allocated under the CRII (Corporate Resources Inventory Initiative) program. Summer student hiring for field survey projects accounts for an additional 15.5 Full Time Equivalent staff.

The 1994/95 and 1995/96 base budgets for the GSB of $5.5 million are supplemented by three add-on programs. The expanded geoscience field program adds $1.0 million in new funding from the Canada-B.C. Mineral Development Agreement in '94/95. The CRII program adds $337 500 to deliver the mineral potential mapping project. Finally, the Resource Inventory Committee (RIC) has added $60 000 for development of geological mapping standards.

Budget	**1994/1995**	**1995/1996 Estimates**
Chief Geologists Office	$ 389,861	$ 390,000
Administration	$ 225,125	$ 225,000
Scientific Review & publications	$ 445,076	$ 445,000
Mapping and Resource Evaluation	$1,039,357	$1,039,000
Economic Geology	$1,145,627	$1,146,000
Geoscience Information	$ 796,234	$ 796,000
Environmental Geology	$ 773,190	$ 773,000
Economic Development Field Projects	$ 722,596	$ 723,000
Total Base Budget	$5,537,066	$5,537,000
Additional Programs		
Mineral Development Agreement (MDA)	$1,000,000	$ 850,000
Mineral Potential Initiative (CRII)	$ 337,500	$ 337,500
Resource Inventory Committee (RIC)	$ 60,000	$ 60,000
GRAND TOTAL	$6,934,566	$6,784,566

1994/95 BUDGET



EXTERNAL ADVICE - Minister's Technical Liaison Committee

The Minister's Technical Liaison Committee for the Geological Survey Branch has a mandate to provide ongoing advice to the Minister, and the ministry executive, to ensure that the geoscience program of the Branch supports the sustainable economic development objectives of British Columbia.

The Committee makes recommendations to the Minister on the adequacy of the geological survey program and budget to meet Provincial needs, and reviews and endorses the Survey's annual work plan. It recommends new programs or initiatives and evaluates the effectiveness of Branch projects. The Committee provides a link between the Geological Survey Branch's programs and the mineral industry.

The Technical Liaison Committee meets at least twice each year and presents an annual written report to the Minister by February 15th, each year.

MEMBERSHIP

The Committee members are selected by the Minister on the basis of the geoscience leadership they have exhibited in their institutional, industrial and geographic communities. Members are business representatives, resource managers, research managers or researchers active in earth and marine sciences and are drawn from academic, industrial and government sectors, such that each is fairly represented. Appointments are for a two year term with the possibility of reappointment for an additional term, to a maximum of four years. The Chairperson is appointed by the Minister.

The Technical Liaison Committee members (as of May 1, 1994) are:

Ian Thomson (**Chairperson**)	Chief Geologist Orvana Minerals Corp.
Paul Lhotka	Senior Geologist Westmin Resources Limited
Fred Daley	District Manager Teck Exploration Limited
Ben Ainsworth	Principal Ainsworth-Jenkins Holdings Inc.
Nick Carter	Mining Consultant Victoria, B. C.
Jenna Hardy	Manager; Technical Services PanAmerican Minerals Corp.
Dirk Templeman-Kluit	Director Geological Survey of Canada
Susan Kieffer	Head; Department of Geological Sciences The University of British Columbia
John Thompson	Director; Mineral Deposit Research Unit The University of British Columbia
W. R. Smyth	Chief Geologist B.C. Geological Survey Branch, MEMPR

PROGRAM ACCOMPLISHMENTS 1993/94

The *"Mineral Strategy for B.C."* released in March 1993 by Hon. Anne Edwards, Minister of Energy, Mines and Petroleum Resources provided a policy framework and focus for Ministry and government initiatives in 1993-'94 for the mining sector. In response to the Minister's mineral strategy, the Geological Survey Branch changed its focus and carried out a number of field programs in areas of established mining infrastructure.

GSB 1993/94 Program Highlights

- The Branch focused on integrated, multi-disciplinary field programs in areas with established mining infrastructure and with good potential for new mine discoveries. This maximized resources and integrated a variety of scientific disciplines to unearth clues needed to discover buried mineral deposits and to establish the exploration techniques that best apply in the different regions. Five projects were carried out in the following areas: Northern Vancouver Island; Interior Plateau; East Kootenays (Yahk/Creston); Northern Selkirk (Goldstream); Tulsequah (Northwest). Several new mineral occurrences were discovered and the published results led to industry claim staking and follow-up exploration activity in several areas.
- The GSB increased awareness of the development potential for industrial minerals. A partnership was made with B.C. Trade and Development Corporation to promote B.C.'s industrial minerals in offshore markets. The first in a series of newsletters on industrial minerals topics was produced and a number of regional meetings were held.
- The coal program continued to focus on the quality of B.C. coals and was directed at mine site studies. A comprehensive summary of the southeast coalfields, important trace element data for all BC coals, and assessments of the province's coalbed methane resources were completed and data published.
- The Regional Geochemical Survey program produced new data for gold and 25 other metals for the Hope, Ashcroft and Pemberton areas. The data identified over 30 highly anomalous precious metal sites which were open for staking.
- The Geoscience Cooperation for British Columbia Committee (GSB & GSC staff) held a successful 3-day strategic planning session to identify the geoscience needs for British Columbia in the next decade and to develop a joint strategic plan.
- Regional Mineral Potential Evaluations - 1:250 000 scale mineral potential evaluations were completed for five regions: Vancouver Island, Kootenays, Nass-Skeena and Cariboo. GIS (Geographic Information Systems) compatible mineral potential maps for use in the CORE Round Table process were produced. This information is critical for categorizing and zoning the province's land base. A user-pay workshop was held to transfer expertise and methodology to other agencies of federal and provincial governments.
- GSB scientific staff, in cooperation with their counterparts in industry, university, the U.S. Geological Survey, and the Geological Survey of Canada, produced over 100 mineral deposit models. These models are used in expert assessment of mineral potential and provide a scientific basis for mineral exploration with the province.
- British Columbia's MINFILE mineral inventory system was adopted under license by the Government of the Northwest Territories for the development of a comparable

system. The MINFILE team provided an intensive one week mineral inventory training program for two UN sponsored geologists from Tanzania.

- The geoscience databases maintained by the GSB were updated during the year. MINFILE and ARIS in particular initiated new product releases and had major improvements to their operating systems to improve access by government, industry and public clients.
- GSB personnel chaired a RIC (Resources Inventory Committee) Task Force. Provincial standards/guidelines for bedrock mapping, terrain mapping, seismic microzonation mapping and groundwater mapping resulted.
- Improved public and industry communications was achieved through a revitalized marketing and communications effort. Previous versions of publications indexes and catalogues were updated; New public awareness brochures on Landslides, Earthquakes and Rockhounding were produced.
- Geoscience staff organized and managed a number of technical workshops, meetings and fieldtrips to aid in the transfer of new resources-related information to the minerals industry, government and academia. Most notable of these activities were the annual Cordilleran Roundup, a Drift Prospecting Course, the Kamloops Exploration Group meeting, a field conference in Port Hardy, two regional meetings in Tumbler Ridge and Sparwood on coal resources, and the Cordilleran Tectonics Workshop in Victoria.

STRATEGIC PRIORITY

INDUSTRY REVITALIZATION - Geological Surveys

Strategic Goal: Identify promising new regions for ore bodies through targeted geological surveys in order to attract new industry investment.

BACKGROUND:

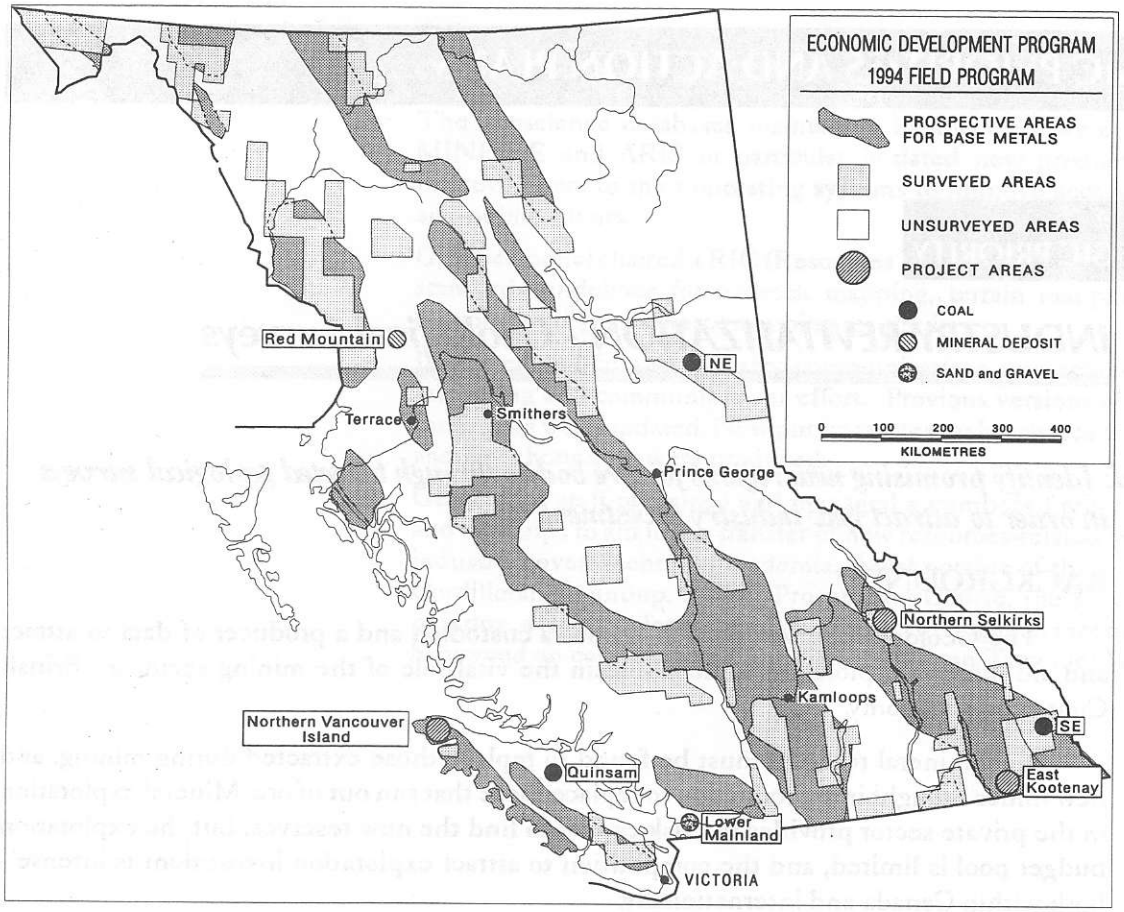
The Geological Survey Branch is both a custodian and a producer of data to attract and aid mineral exploration to help sustain the vital role of the mining sector in British Columbia's economy.

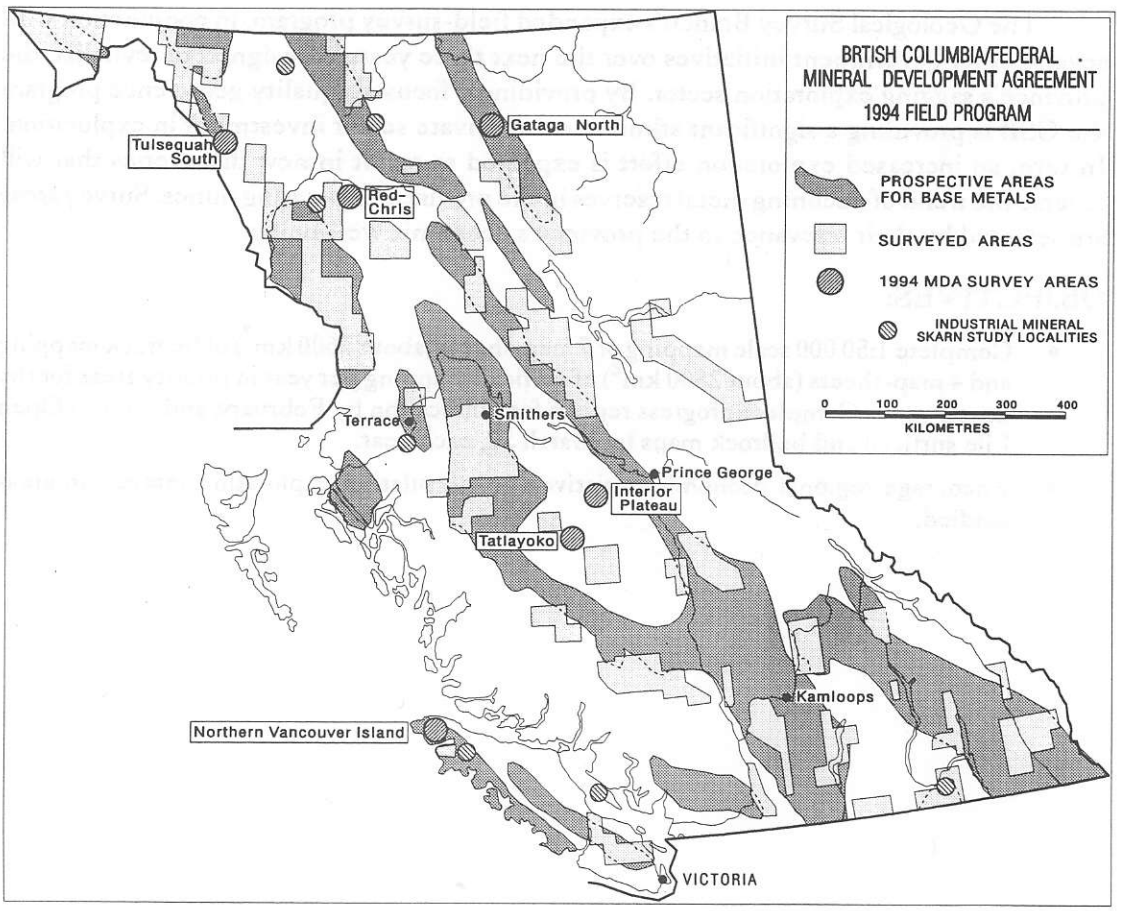
New mineral reserves must be found to replace those extracted during mining, and new mines brought into production to replace those that run out of ore. Mineral exploration in the private sector provides the risk capital to find the new reserves, but the exploration budget pool is limited, and the competition to attract exploration investment is intense - both within Canada and internationally.

The Geological Survey Branch's expanded field-survey program, in conjunction with several other government initiatives over the next three years is designed to revitalize the province's sagging exploration sector. By providing a focused, quality geoscience program the GSB is providing a significant stimulation to private sector inveatment in exploration. In turn, an increased exploration effort is expected to result in new discoveries that will reverse the trend of declining metal reserves in the province's operating mines. Survey areas are selected by their relevance to the province's economic well-being.

OBJECTIVES:

- Complete 1:50 000 scale mapping of 7 map-sheets (about 7600 km^2) of bedrock mapping and 4 map-sheets (about 2500 km^2) of surficial mapping per year in priority areas for the next 2 years. Complete progress reports for publication by February, and publish Open File surficial and bedrock maps by March 31, each year.
- Encourage regional economic initiatives by stimulating exploration interest in areas studied.


ECONOMIC DEVELOPMENT PROGRAM
1994 FIELD PROGRAM
PROSPECTIVE AREAS FOR BASE METALS
SURVEYED AREAS
UNSURVEYED AREAS
PROJECT AREAS
COAL
MINERAL DEPOSIT
SAND and GRAVEL
0 100 200 300 400
KILOMETRES
Red Mountain
NE
Terrace
Smithers
Prince George
Northern Selkirks
Kamloops
Northern Vancouver Island
SE
Quinsam
East Kootenay
Lower Mainland
VICTORIA


BRTISH COLUMBIA/FEDERAL
MINERAL DEVELOPMENT AGREEMENT
1994 FIELD PROGRAM
PROSPECTIVE AREAS FOR BASE METALS
SURVEYED AREAS
1994 MDA SURVEY AREAS
INDUSTRIAL MINERAL SKARN STUDY LOCALITIES
0 100 200 300 400
KILOMETRES
Tulsequah South
Gataga North
Red-Chris
Terrace
Smithers
Prince George
Interior Plateau
Tatlayoko
Kamloops
Northern Vancouver Island
VICTORIA

PROJECT PLANS

Interior Plateau multidisciplinary mapping project

Project Team:	*Larry Diakow, Vic Levson, Tom Schroeter, Steve Cook, Bob Lane, Ian Webster*		
Project Budget:	*Salaries*	*$242 000*	*6 fieldcrew*
	Operational	*$265 000*	*Fieldwork 1992-'95*
Base/MDA	*Total Budget*	*$507 000*	

PROJECT STATEMENT: The northern Interior Plateau is within a regional zone of tectonic uplift underlain by middle Jurassic and Eocene volcanics that contain important precious metal prospects such as the Wolf deposit. Porphyry copper and skarn occurrences are associated with Late Cretaceous plutons. Widespread drift cover, and lack of geological, geochemical and geophysical information has hindered exploration in the region. This project's objectives are to stimulate exploration by 1) improving the geological database, 2) providing geochemical and geophysical data, 3) developing and demonstrating new drift-exploration techniques, and 4) describing mineral occurrences. In 1993 the GSB program discovered several new precious metal occurrences and identified geochemical anomalies which are significant new targets for mineral exploration.

ACTIONS:

- Four complimentary research programs will cover about 1740 square kilometres within NTS map sheets 93F/2 and 93F/7: bedrock geological mapping at 1:100 000 scale; surficial mapping and regional till sampling; lake sediment geochemical studies over mineralized areas; and a detailed description of metallic mineral occurrences.
- Release lake sediment and till geochemistry data from the 1993 field survey.
- Host a conference and fieldtrip in the Nechako Plateau region in conjunction with the Geological Survey of Canada.

Northern Vancouver Island integrated base metal and precious metal project

Project Team:	*Andre Panteleyev, Graham Nixon, Peter Bobrowski, Steve Sibbick*		
Project Budget:	*Salaries*	*$325 000*	*10 fieldcrew*
	Operational	*$75 000*	*Fieldwork 1992-'94*
Base/MDA	*Total*	*$400 000*	

PROJECT STATEMENT: Northern Vancouver Island is richly endowed with mineral resources, but the existing geoscience database is incomplete and needs updating. The region is also a high priority, land use planning area. Further, the Island Copper Mine, which has operated continuously for more than 20 years is nearing closure. This multidisciplinary project has a base metal and precious metal focus. It will update the geoscience database, assess the mineral potential of the region, and attempt to identify clues to help discover new deposits. Results of the multidisciplinary studies will be integrated to achieve the project objectives. Fieldwork will be completed in 1994.

ACTIONS:

- Four component surveys are planned to cover an area of approximately 735 square kilometres: bedrock geological mapping of NTS 92L12/W and 102/9 at 1:20 000 scale and compile data at 1:50 000 scale; surficial mapping and production of drift-prospecting maps for NTS 109I/9; geochemical studies of drainages in areas underlain largely by Bonanza Group rocks; and drill core and surface exposures studies to interpret alteration processes to distinguish mineralized from barren zones of advanced argillic alteration.

Gataga North multidisciplinary base metal project

Project Team:	*JoAnne Nelson, Fil Ferri*		*5 fieldcrew*
Project Budget:	*Salaries*	*$143 000*	*Fieldwork 1994-'95*
	Operational	*$164 000*	
Base/MDA	*Total:*	*$307 000*	

PROJECT STATEMENT: This new multi-disciplinary, two field-season project will feature geoscientific studies over about 785 square kilometres in the Gataga area, where sedimentary exhalative silver-lead-zinc (SEDEX) deposits are the primary exploration target. It will concentrate on geoscience surveys to improve bedrock and surficial geological maps and interpretations, and on refining geochemical exploration tools and mineral deposit models. The study will include 1:50 000-scale geological mapping northward from the Driftpile Creek SEDEX property, geochemical and surficial studies in cooperation with the GSC's studies of SEDEX mineralizing environments, to aid exploration.

ACTIONS:

- Existing 1:50 000-scale map coverage will be extended northward along a mineralized sedimentary belt into areas that are poorly mapped and understood. The accompanying mineral deposit, geochemical, and surficial studies (planned for 1995-96) will attempt to provide better exploration tools in areas of low bedrock exposure.

Tulsequah South bedrock mapping base metal initiative project

Project Team:	*Mitch Mihalynuk*		*3 fieldcrew*
Project Budget:	*Salaries*	*$102 000*	*Fieldwork 1993-'94*
	Operational	*$141 000*	
Base / MDA	*Total Budget*	*$243 000*	

PROJECT STATEMENT: Complete approximately 785 square kilometres of 1:50 000-scale bedrock geological mapping in the region that hosts both the important Tulsequah Chief volcanogenic massive sulphide deposit, and the nearby Polaris Taku gold deposit. Existing mapping is out of date and inadequate to assess the mineral potential of this base and precious metal district. Favourable strata are more widely distributed than indicated by previous work; new mapping and new interpretations have and will continue to facilitate and stimulate mineral exploration in the region. Fieldwork will be completed in 1994.

ACTIONS:

- Extend regional mapping eastward to NTS 104K/11 paying particular attention to: the VMS-hosting lithologies in Paleozoic Stikine assemblage rocks of the Stikine terrane; gold in the transition zone between the Stikine and Nisling terranes adjacent to the Llewellyn fault zone; and the potential for gold mineralization in east-west cross faults.

Tatlayoko bedrock mapping project

Project Team:	*Paul Schiarizza*		*4 fieldcrew*
Project Budget:	*Salaries*	*$126 000*	*Fieldwork 1992-'94*
	Operational	*$ 72 000*	
Base/MDA	*Total Budget*	*$198 000*	

PROJECT STATEMENT: The objective is to map 870 square kilometres of Mesozoic and Cenozoic volcanic, sedimentary and intrusive rocks along the transition from the Coast Mountains to the Intermontane Belt. It includes the Cretaceous, large-tonnage Fish Lake copper-gold porphyry deposit, and a number of other porphyry-style mineral occurrences, as well as polymetallic and mesothermal precious metal vein deposits. However, the present geologic database is not adequate to answer fundamental questions about the controls and distri-

bution of mineral occurrences. The area is also one of intense landuse interest; new geological interpretations will allow a reliable evaluation of mineral potential and provide a basis for informed land-use decisions. Fieldwork will be completed in 1994.

ACTIONS:

- Extend existing geologic mapping northwest to cover map-sheet NTS 92N/9, as well as small portions of adjacent sheets to the east, south and west, and tie in with work conducted to the west by the Geological Survey of Canada.

Tatogga Lake metallogenic project

Project Team:	*Chris Ash*		*2 fieldcrew*
Project Budget:	*Salaries*	*$91 000*	*Fieldwork 1994-'96*
	Operational	*36 000*	
Base/MDA	*Total*	*$127 000*	

PROJECT STATEMENT: The new, 3-year Tatogga Lake Project involves metallogenic mapping and detailed deposit studies over a 725 square kilometre belt of Mesozoic island-arc rocks situated along the northern margin of the Bowser Basin. These rocks host a variety of arc-related deposits that include: porphyry, epithermal, volcanogenic massive sulphide, and intrusion-related vein deposits. A reconnaissance program will be completed in 1994. The deposit studies will focus on the Red Chris, Rose and Groaton porphyry occurrences. The objeetives are to describe the geological setting, age and geochemical character of both host rocks and the mineralizing systems. A 1:50 000-scale map of the belt will be completed in 1995.

ACTIONS:

- Complete a mining-camp study in the 725 square kilometre region around the Red Chris deposit to understand ore controls in this porphyry copper-gold deposit by mapping the setting of this and other deposits in the area.

East Kootenay multidisciplinary project

Project Team:	*Derek Brown*		*4 fieldcrew*
Project Budget:	*Salaries*	*$131 000*	*Fieldwork 1993-'94*
	Operational	*$ 87 000*	
Base	*Total*	*$218 000*	

PROJECT STATEMENT: The Purcell Supergroup in southeastern British Columbia hosts the rich Sullivan mine and numerous other deposits. In the last five years there have been a number of new SEDEX silver-lead-zinc vein and shear-hosted gold discoveries within the Purcell Supergroup, including the Fors, Star and David prospects. These encouraging discoveries, coupled with renewed interest in redbed stratiform copper deposits, relatively low exploration costs and established infrastructure, all combine to make this area attractive for exploration.

This project will contribute to the ongoing GSC-GSB Sullivan-Aldridge research project. Regional mapping and metallogeny are delivered by the Branch, whereas the GSC is focusing on the immediate Sullivan Mine area. The GSB bedrock mapping, completed in the 1980s around Sullivan and in this project, has extended the regional geological framework and mineral potential evaluation southwest of the Sullivan mine. Fieldwork will be completed in 1994.

ACTIONS:

- Complete bedrock mapping of two 1:50 000-scale map sheets, 980 square kilometres, in the Creston area, (NTS 82F/1, 2; this includes part of the mapping initiated in 1993); study mineral prospects higher in the stratigraphy than the Sullivan deposit, *e.g.*, Fors,

Iron Range, Leg and David; complete regional geochemical and lithogeochemical sampling and follow-up research.

- Host a conference and field trips in Cranbrook (September 30 to October 5, 1994) in conjunction with the Tobacco Root Geological Society, and the GSC.
- Contribute to the Sullivan-Aldridge symposium and publication as part of the GAC/MAC VICTORIA '95 conference in Victoria, May 1995.

Northern Selkirks project

Project Team:	*Jim Logan*		*4 fieldcrew*
Project Budget:	*Salaries*	*$150 000*	*Fieldwork 1993-'96*
	Operational	*$ 85 000*	
Base	*Total*	*$235 000*	

PROJECT STATEMENT: Lardeau Group and older rocks underly an area north of Revelstoke. They host a number of volcanogenic massive sulphide deposits, including the operating Goldstream mine. Existing geological mapping covers only small areas or lacks the detail to provide the necessary framework for effective exploration.

Reconnaissance mapping and lithogeochemical sampling in 1993 of known copper-zinc occurrences established the need to update the geological mapping database and assess mineral potential. The project includes mineral deposit and geochemical studies designed to develop new geological and geochemical parameters for mineral exploration in this area. The focus is to establish the age and chemical characteristics of mineralization and host lithologies, trace both of these regionally, and assess mineral potential within this structurally complex area. Fieldwork will be completed in 1994.

ACTIONS:

- Complete 1:50 000-scale bedrock mapping of 980 square kilometres in NTS 82M/9W and 10E.
- Map and sample current workings and drill core at the Goldstream mine to produce an updated deposit description with suggested exploration guides for similar deposits.
- Carry out a lithogeochemical study of approximately 200 samples from drill core to model the alteration zonation around the Goldstream deposit. These analyses will form a database for regional correlations with additional samples collected during regional mapping.
- Trace the "marker horizon", an Fe-Mn-rich siliceous unit, closely associated with massive copper-zinc ore at Goldstream mine, to test its regional exploration potential.

Aggregate inventory project

Project Team:	*Peter Bobrowsky*		*2 fieldcrew*
Project Budget:	*Salaries*	*$ 63 000*	*Fieldwork 1994-'95*
	Operational	*$ 21 000*	
Base	*Total*	*$ 84 000*	

PROJECT STATEMENT: This new project will develop a sand-and-gravel inventory project to assist the Ministry manage aggregate resources. This long term project will: 1) provide an inventory of new and existing aggregate reserves, 2) develop a database of provincial sand and gravel deposits, 3) provide technical expertise to provincial land-use planning.

ACTIONS:

- Develop a database of aggregate reserves on private and crown lands following the inventory guidelines established by Ministry of Transport and Highways (MOTH). This inventory will be integrated with the existing MOTH compilation on govern-

ment controlled reserves. A combined version of the database will then be released as an Open File.

- Provide advice on land-use issues.

Andalusite family minerals project

Project Leader:	*George Simandl*		*2 fieldcrew*
Project Budget:	*Salaries*	*$50 000*	*Fieldwork 1994-'95*
	Operational	*$45 000*	
Base	*Total*	*$95 000*	

PROJECT STATEMENT: Andalusite, sillimanite and kyanite are aluminum-silicate polymorphs and are used mainly in the refractory-minerals industry. British Columbia has excellent development potential for these minerals. The project will contribute to the understanding of andalusite family deposits and their economic potential.

ACTIONS:

- Identify occurrences with grade and tonnage development potential.
- Document selected mineral occurrences. Special attention will be paid to characterizing critical physical and chemical characteristics.

Industrial mineral skarns project

Project Leader:	*Gerry Ray*		*2 fieldcrew*
Project Budget:	*Salaries*	*$41 000*	*Fieldwork 1994-'95*
	Operational	*$ 31 000*	
Base/MDA	*Total*	*$72 000*	

PROJECT STATEMENT: This project will map, sample and evaluate representative deposits or occurrences of the province's skarns that have potential as a source of industrial minerals. This study will draw on the project leader's extensive knowledge of skarns and focus on industrial minerals with development opportunities, such as wollastonite, garnet, tremolite-actinolite, magnetite and beryl. The deposit studies will typically be in areas with established infrastructure. In the first year the emphasis will be on examining wollastonite properties, such as the Little Billy, Wormy Lake, Fintry Point and Rossland.

ACTIONS:

- Carry out fieldwork mapping, sampling, and where possible, core logging at selected skarn occurrences.
- Complete a major publication on metal skarns of British Columbia.

STRATEGIC PRIORITY

INDUSTRY REVITALIZATION - Exploration Incentives

Strategic Goal: Encourage exploration investment in British Columbia by providing part of the risk capital for prospectors and mining companies.

BACKGROUND:

The province's exploration sector is sagging and the competition to attract exploration investment is intense.

The 1994/95 financial incentives are targeted to encourage prospectors and mining companies do the high-risk exploration work by providing part of the risk capitol.

OBJECTIVE:

- Encourage new exploration investment and activity which has the potential for new mine developments in the province over the next decade.

ACTIONS:

- Provide an incentive program, *Explore B.C.*, for exploration and mining companies to explore on properties or at developed mine sites with identified economic potential, by providing grants up to one-third of exploration costs, to a maximum of $150 000 per property. A total of $3.6 million is available in 1994-'95 to companies through *Explore B.C.* and $5.0 million is profiled for 1995-'96.
- Through *Prospectors Assistance Program*, provide up to $10 000 to qualified prospectors to explore for new mineral deposits. The budget is $500 000 per year.

STRATEGIC PRIORITY

DATA FOR DECISION MAKING

Strategic Goal: Provide timely and reliable data on B.C.'s mineral resources, mineral potential and industry trends to Government's land planning initiatives (CORE, PAS, LRMP), industry and First Nations.

BACKGROUND:

The GSB manages a variety of geoscience and resource inventory databases (MINFILE, RGS, ARIS, Mineral Potential, COALFILE, Property File, bedrock and surficial mapping, *etc.*) in support of both resource management and economic development roles.

Mineral Potential analysis is recognized as the primary data required to represent exploration and mining interests in land-use planning. The GSB performs these analyses for regions (1:250 000 scale) on a priority basis, as required by the Commission on Resources and the Environment (CORE), Protected Areas Strategy (PAS) and Land and Resources Management Planning (LRMP) for inclusion in multi-resource land-use planning.

Mineral Potential analysis and its supporting resource inventories and geoscience databases are integrated with other ministryies' resource inventories through the Corporate Resource Inventory Initiative (CRII).

OBJECTIVES:

- Provide a reliable and accurate inventory of British Columbia's mineral reserves and resources.
- Review all geoscience documents submitted for regulatory approval (mineral and coal tenure, MDAP), and ensure professional standards are maintained and the documents and related indexes are readily available to clients.
- Report monthly and annually on industry exploration activity and trends, and provide timely analysis of the impacts of these activities to government.
- Provide credible and understandable estimates of the value of undiscovered resources (mineral potential) and rate potential for economic activity through mining and exploration.
- Maintain geological bedrock, geochemical, and surficial geological databases in support of both resource management and economic development.
- Demonstrate leadership in the effective integrated use of multiple databases to improve the effectiveness of resource management and the success of economic development initiatives.

MINFILE project

Project Team:	*Larry Jones, Dorthe Jakobsen, George Owsiaki, Cindy McPeek, Laura deGroot*	
Project Budget:	*Salaries:*	*$206 000*
	Operational:	*$ 52 000*
Base	*Total:*	*$257 000*

PROJECT STATEMENT: MINFILE is the Ministry's computerized mineral inventory database of over 11 300 mineral, coal and industrial mineral occurrences in B.C. MINFILE is used extensively by industry and government in areas of exploration planning, resource information, land-use planning, and research. Capture of information in the computer database (coding) is 81% complete, of which 75% is released.

ACTIONS:

- Of the approximately 3000 mineral occurrences (includes 30% growth) which remain to be coded, about 600 will be coded and over 900 will be edited/updated in 1994-'95. This effort will complete coding for over 83% of B.C.'s mineral occurrences.
- Release 18 map sheets (over 760 occurrences). This will result in 80% of the MINFILE database being released.
- Enhance the MINFILE/pc software and distribute it as MINFILE/pc, Version 4.0. Support documents will include training notes, manuals and technical documents.
- Increase efforts to market the MINFILE system to other Geological Surveys, and design a generic MINFILE/pc program for this purpose.

Industry assessment report project

Project Team:	*Talis Kalnins, Allan Wilcox, Dawna Biffert, Cindy McPeek, Laura deGroot (minerals); Alex Matheson (coal)*	
Project Budget:	*Salaries:*	*$227 000*
	Operational:	*$ 48 000*
Base	*Total:*	*$275 000*

PROJECT STATEMENT: Mineral explorationists submit exploration results in Assessment Reports (AR) to maintain their mineral tenures in compliance with the *Mineral Tenure Act* (MTA) and the *Coal Act*. The mineral reports are reviewed for compliance with the MTA Regulations and indexed in the ARIS (Assessment Report Indexing System) database. The library of more than 23 000 reports, on paper and fiche, is available for public viewing and copies are available through a distribution agent. ARIS database products: Index (fiche, paper and diskette) and Index Maps (fiche and paper) are designed to simplify access to the library of original reports, thus making exploration investment decisions and estimations of mineral potential easier.

ACTIONS:

- Audit up to 600 ARs within 60 days of receipt and followup on disputes.
- Update the ARIS database weekly and the AR Index and maps annually by Dec. 31.
- Microfilm off-confidential ARs monthly (by contract microfilm company) and distribute fiche duplicates to 25 government offices for client viewing.
- Provide sales of AR copies, fiche and ARIS products through the contract distribution agent; BC and Yukon Chamber of Mines.
- Publish AR Index and maps annually by January 25.

- Maintain 700 active and 1300 inactive Portable Assessment Credit accounts and mail out annual statements by May.
- Maintain a library of over 23 000 original ARs as well as the 25 library sets on fiche. Compile summary AR statistics quarterly and annually and provide analysis on the level of, and trends in exploration.
- Provide advice on policy and regulatory issues affecting ARs and the maintenance of mineral titles.
- Conduct a pilot project for the voluntary submission of ARs in digital, as well as a paper format to investigate the feasibility, standards, and the operational and statutory requirements to effect a permanent change.
- Libraries of coal Assessment Reports recently microfilmed will be offered for sale on microfiche.

Exploration monitoring

Project Team:	*Tom Schroeter, Bob Lane, Marjorie Hunter*	
Project Budget:	*Salaries:*	*$167 000*
	Operational:	*$ 30 000*
Base	*Total:*	*$197 000*

PROJECT STATEMENT: **Monitoring exploration trends and developments in the province is the primary responsibility of the Vancouver Office. This office is a key communications link between the GSB and it's exploration community clients. In partnership with the Regional Geologists it provides service to the mining community by providing consultation, publications, maps, databases and a geoscience library.**

ACTIONS:

- In cooperation with the Regional Geologists prepare an annual summary of exploration and development which will be presented in text, poster displays and talks at the Northwest Mining Convention (Spokane, Dec.), Cordilleran Roundup (Vancouver, Jan.) and The Prospectors and Developers Convention (Toronto, Mar.).
- Monitor new developments in the Red Mountain area as the Red Mountain gold deposit proceeds through the Mine Development Assessment Process.
- Four regional trips will be undertaken during the field season to visit sites of key exploration/development projects.
- Collect and analyse production and reserve statistics for operating lode metal mines, and update the GOLDFILE.

Mineral potential initiative project

Project Team:	*Ward Kilby, Eric Grunsky, Nick Massey, Don MacIntyre, Kim Bellefontaine Pat Desjardin, Andrew Legun,*	
Project Budget:	*Salaries:*	*$469,231*
	Operational:	*$152,500*
Base	*Total:*	*$621,731*

PROJECT STATEMENT: **The project will perform mineral potential analysis of the province at 1:250 000-scale. In 1994-'95, the northeast BC area will be completed and the final area, northwest B.C. will be completed in 1995-'96. The methodology has been reviewed by world experts and can be explained in straight forward terms to non-specialists. Using both qualitative and quantitative methods a relative ranking of mineral lands can be estimated for each analysis region. Quantitative data for known and expected mineral resources are made available for further socio-economic analysis.**

ACTIONS:

- Compile the geology of the northeast B.C. region at a scale of 1:250 000. Compile all relevant mineral statistics information for this region.
- Estimate the number of undiscovered mineral deposits in the region by combining estimates made by industry and government experts. Using compiled mineral statistics and estimates of future discoveries, rank the land base of the northeast B.C. region with respect to its ability to sustain economic activity by the exploration and mining industry.
- Communicate the results of the analysis to land planners to ensure the product is used where ever possible to facilitate the most informed landuse decision possible.

STRATEGIC PRIORITY

INDUSTRY DIVERSIFICATION - Industrial Minerals Promotion

***Strategic Goal:** Identify export opportunities and new markets for British Columbia's expanding industrial minerals sector.*

BACKGROUND:

British Columbia's mineral industry has excellent potential to diversify into industrial minerals to supply provincial and international markets. The province is richly endowed with a variety of industrial minerals, which traditionally have received less attention than either coal or metals. The industrial minerals sector (including construction materials) has grown steadily from a $5 million industry in 1945 to the present size of over $350 million.

British Columbia appears well positioned to experience a marked increase in the value of industrial mineral output in the latter part of this decade. The province is competitive in world markets because it enjoys a rich mineral endowment, a superior geological database, a well developed infrastructure in the south, mining expertise, competitive energy prices and a favourable circum-Pacific location. These advantages can be used to aggressively promote the province's industrial minerals to stimulate economic development.

Sulphur, magnesite, gypsum, silica, barite and limestone are some of the most important of the eighteen industrial minerals mined in British Columbia. Companies and prospectors are exploring for granite, marble, white limestone, garnet, white barite, wollastonite, silica, zeolite, kaolin and talc deposits. There is increased interest in the potential for high value gemstones such as diamonds, opals and sapphires.

The Ministry of Energy, Mines and Petroleum Resources in partnership with B.C. Trade and Development Corporation, and industry have started a new initiative to stimulate the development of industrial minerals. This will be done by attracting company investments and developing new markets for existing products.

OBJECTIVES:

The main strategic objectives of this initiative are:

- Increase awareness of the potential in B.C. for industrial mineral products.
- Develop new export markets for B.C. industrial minerals and related products.
- Increase the value-added processing component of the sector.
- Foster local industry by replacing imported industrial minerals and related products with B.C.'s own.

Industrial minerals promotion

Project Team:	*Dan Hora, George Simandl, Kirk Hancock*		*3 FTEs*
Project Budget:	*Salaries*	*$228 000*	
	Operational	*$65 000*	
Base	*Total*	*$295 000 (plus $145 000 from BC Trade)*	

ACTIONS:

- Publish and circulate to an international audience of exploration and mining companies, and investors four issues of a newsletter titled "*Focus on Industrial Minerals*".
- Produce a directory of those involved in the industrial mineral sector in British Columbia to promote cooperation and advertise available products and services.
- Attend international trade shows, conferences and technical meetings to promote the province's industrial minerals, particularly dimension stone and refractory minerals.
- Promote opportunities for refractory minerals and related value-added products through a publication outlining B.C.'s opportunities in these areas. Use the document and staff expertise to deliver a trade mission on the same topic to Japan and Korea.
- Promote dimension stone by hosting an incoming trade mission from California. Publish an updated catalog of British Columbia dimension stone and prepare a document outlining how to start a quarry.

STRATEGIC PRIORITY

GEOLOGICAL HAZARDS - IDENTIFICATION AND MITIGATION

Strategic Goal: Provide information and advice to provincial and municipal governments and the public on geological hazards, hazard reduction and related land planning.

BACKGROUND:

British Columbia is a seismically active area subject to crustal, subcrustal and probably subduction earthquakes. The largest earthquake in Canada (M-8.1) occurred near the Queen Charlotte Islands in 1949. The 1946 earthquake near Courtenay was the most destructive. The estimated economic risk of a moderate (M-6.5) earthquake on the Lower Mainland alone ranges from $14.3 to $32.1 billion.

Earthquake data recorded and monitored by the Geological Survey of Canada show that damage is largely controlled by site characteristics (geological conditions). These can be mapped at the local planning scale. Earthquake hazard maps have been developed in the United States and elsewhere and are considered to be useful tools for emergency and land-use planning. They can be used to to aid in setting priorites for seismic upgrading or remediation work on existing facilities. For emergency planners they are useful for identifying critical facilities that are geologically the most vulnerable, including lifeline systems, transportation corridors and emergency centres.

Standards and methods for earthquake hazard mapping exist but no coordinated provincial program has been implemented in British Columbia. Furthermore, the new *Emergency Program Act* (S.B.C. 1993, c.41) which became effective last year, requires municipal governments to create and maintain an emergency preparedness organization. A emerging need for geologic and geotechnical data related to earthquake hazards is expected to arise from this legislation.

As the principal advisor to the B.C. Government on geological matters and the driving force behind the development of earthquake hazard mapping standards and guidelines, the Branch believes it is well postioned to take the lead role in developing an earthquake hazard mapping program.

OBJECTIVES:

- Determine the needs of emergency and landuse planners for earthquake hazard maps.
- Develop technical skills to provide expert advice on geological hazard reduction, landuse and emergency planning.
- Develop partnerships with federal, provincial and municipal agencies for the development of earthquake-hazard maps for urban areas of the province.

ACTIONS:

- Advise municipalities of earthquake hazard risks and assess the demand for hazard maps.
- Prepare recommendations and seek approval from the ministry and government for an earthquake hazard mapping program.
- Initiate a trial geological hazard mapping program in 1994 in a lower mainland municipal area.
- Liaise with the Geological Survey of Canada (GSC), Provincial Emergency Program (PEP), Inter-Agency Preparedness Committee (IEPC), Emergency Preparedness Canada (EPC), municipal planners as well as relevant university institutions for advice, funding and colloboration opportunties.

STRATEGIC PRIORITY

MARKETING OPPORTUNITIES

Strategic Goal: Optimize marketing opportunities for B.C.'s mineral industry and GSB products.

BACKGROUND:

The Geological Survey Branch is a key player in providing information to exploration and mining companies regarding exploration targets and mineral products that represent investment opportunities in B.C. In the very competitive global market, it is critical to promote B.C.'s mineral wealth and unique advantages with respect to processing minerals to attract industry exploration and development investment.

New exploration activity must be attracted to British Columbia if the province wishes to maintain a healthy mining industry. The exploration and prospecting incentive programs are a clear message to the industry that the province welcomes their efforts to find new mines.

The Geological Survey Branch is an effective means to get this message to industry, particularly outside British Columbia.

OBJECTIVES:

- Raise the awareness of the mineral sector to investment opportunities in British Columbia.
- Build partnerships for enhanced promotion of British Columbia for minerals investment.

ACTIONS:

- Establish a list of potential international minerals industry clients.
- Promote B.C.'s mineral wealth and exploration opportunities to international audiences through conferences, workshops, articles in journals and trade publications, and targetted information mailouts.
- Produce information circulars on metallic and industrial minerals, and mineral deposit models designed to attract exploration investment to British Columbia.
- Promote the province's geoscience database and its value to mineral exploration and development.
- Interact with other Branches on new methods of distributing Division information to clients.

STRATEGIC PRIORITY

FOCUSSING THE WORK OF THE GEOLOGICAL SURVEY OF CANADA ON B.C. PRIORITIES

Strategic Goal: Mutually agree with the Geological Survey of Canada on priorities for their geoscience work in the province.

BACKGROUND:

The Geological Survey of Canada is a key player in the development of a comprehensive geoscience knowledge base for economic development, land-use management and safety in Canada. They have two offices in British Columbia (Sidney and Vancouver) with a combined staffing of 80 and annual budget of $7 million.

For much of their history, GSC programs have been national in scope and regional in scale (*e.g.*, seismic network, regional geological, geochemical and geophysical mapping) and they have been instrumental in providing fundamental geoscience information for the country. Over time, more GSC programs have been directed to serving provincial geoscience needs. To ensure GSC programs are fully integrated with provincial priorities in resource management and economic development and to avoid the perception of duplication and overlap, closer coordination between the two surveys is essential. The signing of the *Principles of Cooperation* between the GSC and the GSB in 1991 established a basis for cooperation in geoscience program planning and implementation. Further strengthening of the joint program planning and communication between GSB and GSC is required.

OBJECTIVES:

- In the short term, better integration of Geological Survey of Canada geoscience activites with provincial priorities in economic development and resource managment programs.
- In the longer term, rationalize geoscience activities in the province by the two surveys to optimize use of scarce resources.

ACTIONS:

- Develop a joint strategic plan that serves as a management blueprint for both organizations to decide new geoscience initiatives, and cooperative and colloborative programs. Plans will be based on joint discussions to address provincial concerns and needs, and definition of project scopes and responsibilites.
- Hold quarterly joint management meetings to monitor progress of programs and facilitate planning.

PUBLICATIONS

BACKGROUND:

Acquisition and dissemination of geoscience information is a crucial ingredient of the Geological Survey Branch's operations. Timely publication and distribution is critical to its value.

OBJECTIVES:

- Compile, edit, and ensure timely and cost efficient publication of all geoscience data generated by the Geological Survey Branch.
- Provide standards and guidelines for the production of GSB publications.
- Expedite the production of approximately 100 publication products during the year.
- Promote easier and convenient access to publications and data from the GSB.

ACTIONS:

- Provide ongoing design, editing and marketing support for Ministry geologists.
- Provide technical standards and guidelines to authors for the production of maps and reports. Ensure printing standards are appropriate to scientific objectives.
- Provide the technical drafting and desktop publishing support for Ministry geologists. Liaise with printing facilities to produce publications.
- Ensure procedures and technology are the most appropriate for rapid and efficient publication production.
- Keep industry/public aware of availability of publications and data. Liaise with Crown Publications and others, for the marketing, sale and distribution of Branch publications.

COMMUNITY RELATIONS & COMMUNICATIONS

BACKGROUND:

The government's Mineral Strategy identified revitalization of the mineral exploration sector as a priority. The GSB has responded by focusing a number of geoscience programs on areas with metal mines with critically declining ore reserves, and also on frontier areas with untested high potential for minerals.

To create a revitalized mining economy, all participants must be kept abreast of activities and plans as well as be involved in the decision-making process. Accordingly, the GSB must work continuously to show that the concerns of every stakeholder are considered.

OBJECTIVES:

- Promote awareness and understanding of the essential role and value of GSB activities in B.C.'s economic development and resource management to key stakeholders.

- Improve public awareness of the economic impact of mining in B.C.
- Improve public awareness of geological hazards in B.C.

ACTIONS:

- Maintain and improve distribution of information on the GSB programs, initiatives and data by close interaction with the Ministry's Communication Branch, industry and municipal associations and various public interest groups.
- Inform economic development officers, Chambers of Commerce, government agents throughout B.C. of GSB programs in their respective areas.
- Host geological workshops and conferences within communities, inviting industry, local government, community representatives and the public.
- Inform local media of projects and the potential for mining developments in their areas.

PROGRAM SUPPORT AND ADMINISTRATION

BACKGROUND:

An effective administrative infrastructure is essential for the Branch to achieve its field and office strategic priorities in a safe and cost-effective manner. Financial and administrative procedures and personnel management must adhere to policies and regulations set out by Treasury Board, Office of the Comptroller General and Public Service Employee Relations Commission. Accurate and timely financial reporting is essential for cost-effective management of field-related budgets.

The sucess of the GSB relies on empowered and motivated staff to maintain the high standards of geoscience work. The achievement of its mission requires dynamic individuals possessing excellent technical, administrative and interpersonal skills. It is vital that these skills be recognized and developed through appropriate training and employee development.

OBJECTIVES:

- Professional and timely financial and administrative services to facilitate the program activities.
- Financial accountability and asset control.
- Professional guidance and support services on personnel-related issues to maintain high work standards and employee satisfaction.

ACTIONS:

- Streamline financial and administrative processes within the Branch.
- Assist GSB managers in the development and management of Branch budgets.
- Produce meaningful and timely Financial Management Reports.
- Manage support services (staff & facilities) for optimum efficiency and service.
- Provide guidance, technical direction and training on financial issues to staff.
- Process all financial documents through Office Management System (OMS).
- Maintain policy and procedures in accordance with OCG standards.
- Liaise with managers and Personnel Services to facilitate hiring, reclassifications, and other personnel issues.
- Provide information to staff on training opportunities.